

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Engineering Division
Honolulu, Hawaii 96813

August 26, 2011

Board of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

**APPLICATION FOR A DLNR DAM SAFETY CONSTRUCTION/ALTERATION PERMIT
PERMIT NO. 52 – OPAEULA NO. 2 RESERVOIR (OA-0019)
DAM ALTERATION/REMOVAL, HALEIWA, HAWAII**

The Engineering Division hereby submits an application for your approval and authorization for the Chairperson and Department to stipulate conditions and issue a Dam Safety Construction/Alteration Permit for the subject application, "Alteration and Removal of the OPAEULA NO. 2 RESERVOIR", pursuant to Hawaii Revised Statutes Chapter 179D and current Administrative Rules.

APPLICANT:

Mr. Thomas Kaeo Duarte
Kamehameha Schools
567 South King Street, Suite 200
Honolulu, HI 96813

SUMMARY OF REQUEST:

Application for a Dam Safety Construction/Alteration Permit for the alteration and removal of the Opaepala No. 2 Reservoir, Haleiwa, Hawaii, See Exhibit 1.

LOCATION: Haleiwa, Oahu, Hawaii, TMK: 6-2-011:001 See Exhibit 2.

BACKGROUND:

Opaepala No. 2 Reservoir was constructed in 1910 for the storage of irrigation water by the former Waialua Sugar Company. It is currently owned by Kamehameha Schools and it was used for irrigation of diversified agricultural and pastoral lands. Since the impounded water is no longer needed, Kamehameha Schools is proposing to remove the impoundment by the removal of the earthen embankment.

DESCRIPTION:

The reservoir will be removed by the removal of the embankment with a bottom width of 20 feet and a side slope of 2H:1V. This will result in a 200 foot long channel spanning the distance from the original reservoir bottom to the natural gulch downstream. This "new" channel will be lined with grouted riprap to provide erosion control.

The completion of this repair will result in lowering the effective height and volume capacity of the dam such that it will fall below the requirements that satisfy the definition of a dam, pursuant to Hawaii Revised Statutes Chapter 179D. See Exhibit 3

CHAPTER 343 – ENVIRONMENTAL ASSESSMENT:

The project is entirely on privately owned lands and does not trigger the requirement for completion of an environmental assessment. See Exhibit 4 for evaluation

REMARKS:

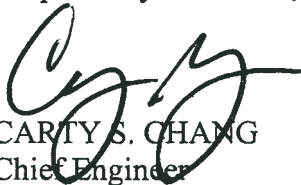
The applicant (Kamehameha Schools) and their consultant, Oceanit Laboratories, Inc., have completed a basis of design, plans and specification and requests for the approval of a dam safety construction/alteration permit. The Department has reviewed the documents and concluded that it is sufficient for its intended purposes. Staff recommends approval of this permit application. See Exhibit 4.

RECOMMENDATION:

That the Board:

1. Authorize the approval and issuance of the Dam Safety Construction/Alteration Permit for this project; and
2. Direct the Chairperson to issue a dam safety permit for the alteration and removal of the Opauala No. 2 Reservoir (DLNR Dam Safety Construction/Alteration Permit No. 52) subject to such other terms and conditions as may be prescribed by the Chairperson to best serve the interests of the State.
3. Authorize the Department to oversee performance of the permitted work and take appropriate action including but not limited to issuance of fines and /or revocation of the permit, if necessary.
4. Authorize the Department to remove this dam from dam safety regulatory oversight and the requirements of Hawaii Revised Statutes Chapter 179D, upon satisfactory completion of the construction project.

Respectfully submitted,


CARTY S. CHANG
Chief Engineer

APPROVED FOR SUBMITTAL:



WILLIAM J. AILA, JR.
Chairperson

FOR

State of Hawaii
BOARD OF LAND AND NATURAL RESOURCES
Department of Land and Natural Resources
Engineering Division

APPLICATION FOR APPROVAL OF PLANS AND SPECIFICATIONS FOR CONSTRUCTION,
ENLARGEMENT, REPAIR, ALTERATION, OR REMOVAL OF A DAM

Date of Application: October 20, 2010
Applicant: Kamehameha Schools
Contact Name: Thomas Kaeo Duarte Firm / Company: Land Asset Division +
Mailing Address 567 South King Street, Suite 200, Honolulu, HI 96813
Telephone: (808) 523-6200 Fax: (808) 523-6374 Email: kaduarte@ksbe.edu

The Applicant hereby applies to the Board of Land and Natural Resources for the approval of the attached plans and specification for the Opaeula No. 2 Reservoir (HI00019) Dam Removal (construction, etc.) in accordance with Chapter 179D HRS (as amended by Act 262, SLH 2006), and subject to the provisions, conditions, and limitations of the current Hawaii Administrative Rules and various DLNR dam safety guidelines.

Accompanying this application are:

(please check)

- | | |
|--|------------------------------|
| 1. Filing fee (\$25.00) (Waived for government agencies) | <u> X </u> |
| 2. Three (3) copies of the Detailed Cost Estimate | <u> X </u> |
| 3. Three (3) copies of the Final Design Report | <u> X </u> |
| 4. Three (3) copies of the Plans | <u> X </u> |
| 5. Three (3) copies of the Specifications | <u> X </u> |
| 6. Proposed Construction Schedule | <u> X </u> |
| 7. Supporting documents: | <u> X </u> |
| <u>USGS Topographic Map</u> | <u> X </u> |
| <u>Property Tax Map</u> | <u> X </u> |
| <u>Engineering Report</u> | <u> X </u> |
| <u>Drainage Report</u> | <u> X </u> |

NAME OF STRUCTURE: Opaeula No.2 Reservoir (HI00019)

DAM OR RESERVOIR LOCATION: Up the Koolau Mountain ~4 miles east-southeast of Haleiwa town

Island: Oahu Tax Map Key: 6-2-011:001

Attach USGS topographic map (scale 1" = 2000') and property tax map (showing location access to site, proposed work)

State Land Use District: X Agriculture Urban Rural Conservation

BRIEF DESCRIPTION OF WORK TO BE PERFORMED

Opaeula Reservoir No. 2 was constructed in 1910 and was initially constructed for the storage of irrigation water by the former Waialua Sugar. Currently it is used to irrigate diversified agricultural and pastoral lands. The Department of Land and Natural Resources (DLNR) has classified this dam as "high". Removing the reservoir is proposed for this project since the water impounded in the reservoir is no longer needed. The dam will be breached by an open channel with a 20 foot bottom width running approximately 200 feet from the reservoir to the minor gulch. The proposed channel will have side slopes of 2H:1V with a constructed riprap apron on the downstream side of the earthen dam to provide erosion control. This will allow storm runoff water to flow directly through the reservoir and into the stream without any retention. The cut material will be used to fill the reservoir.

TECHNICAL INFORMATION:

DLNR-Dam Safety-Sheet 2

1. Drainage Area 0.1040 sq. miles or 66.6 acres
2. Classification of Dam Intermediate, High Hazard
3. Type of Structure Earth Fill Embankment
4. Elevation-Area-Capacity Data:

	Elevation	Surface Area (acres)	Total Storage Volume (acre-feet)
Natural Streambed	~854 ft. MSL	N/A	N/A
Primary Spillway	~895 ft. MSL	3.34	41.29
Secondary Spillway	No secondary Spillway	N/A	N/A
Top of Dam	~900 ft. MSL	4.01	59.68
Design Water Level	~894.5 ft. MSL	3.26	39.66
Invert of Drain	~864 ft. MSL	N/A	N/A
5. Spillway Details (Type, Dimensions, Material)

Primary:	Rectangular Concrete Rubble Masonry lined Channel - 6.6' W x 4' H
Secondary:	None
6. Purpose of Structure previously used for storage of irrigation water
(water supply, irrigation, recreation, real estate development, etc.)
7. Attach rainfall and stream flow records, and flood-flow records and estimates (as accurately as may be readily obtained) See Attachments

ADDITIONAL INFORMATION

1. Primary Owner Contact (if different from applicant) Mr. Thomas Kaeo Duarte
 Owner Company or Entity: Kamehameha Schools
 Mailing Address 567 South King Street, Suit 200, Honolulu, HI 96813
 Telephone: Fax: Email:
2. Registered Hawaii Professional Engineer who prepared the plan Oceanit Laboratories, Inc.
Derrick C. Elfalan, P.E.
 Mailing Address 828 Fort Street Mall, Suite 600, Honolulu, HI 96813
 Registration No. 5448-C, expires 04/30/201
 Telephone: Fax: Email:
3. Registered Professional Engineer to be responsible for inspection during construction
Derrick C. Elfalan
4. Contractor (If known)
 Mailing Address
 Telephone: Fax: Email:
5. List all other permits applications submitted to other governmental agencies:
NPDES - Dept. of Health, Grading and Grubbing Permit - DPP,
6. Anticipated effect of proposed structure on natural environment: Earthen structure will be removed,
and no other structures will be rebuilt. No negative environmental effect is anticipated.

DLNR-Dam Safety-Sheet 3

7. List all other parties that have ownership or other interest on the parcels where the dam and reservoir are located and identify their interest in the property. The Owners herein listed below concur with the work proposed within this application by the applicant and by his/her signing hereto, the owner of the land extends to the Board of Land and Natural Resources, and its designated representatives, a right-of-entry onto the project site to conduct any investigations or inspections required in compliance with the provisions of Chapter 13-190, Hawaii Administrative Rules. (Submit additional copies of this sheet should there be more owners)

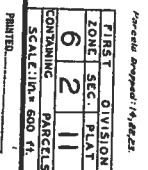
_____	567 South King Street, Suite 200
(Signature of Owner)	Honolulu, HI 96813
_____	(Address / Interest in Dam or Reservoir)
(Signature of Owner)	_____
_____	(Address / Interest in Dam or Reservoir)
(Signature of Owner)	_____
_____	(Address / Interest in Dam or Reservoir)
(Signature of Owner)	_____
_____	(Address / Interest in Dam or Reservoir)
(Signature of Owner)	_____
_____	(Address / Interest in Dam or Reservoir)
(Signature of Owner)	_____
_____	(Address / Interest in Dam or Reservoir)
(Signature of Owner)	_____
_____	(Address / Interest in Dam or Reservoir)
(Signature of Owner)	_____

I, Thomas K Duarte, the applicant, hereby certify that the information herein is true and factual to the best of my knowledge. Signing below indicates that the applicant understands that, if the permit requested is granted by the Board of Land and Natural Resources, the proposed work is to be initiated and completed within two (2) years of the approval date, unless specifically permitted in the approved permit terms and conditions.

(Signature of Applicant & Title)
Water Resource Manager

Date: 10-20-10

NOTE: Plates 2, 3, 4, 5, 6, 7, 8, 9,
12, 13, 14, 19, 20 drawn
by Carlisle & Cochrane, Inc.



CONSTRUCTION PLANS FOR:
'OPAE'ULA NO.2 RESERVOIR (HI00019)
· DAM REMOVAL ·
WAIALUA DISTRICT, ISLAND OF OAHU
TMK: 6-2-11:01

PREPARED FOR:
KAMEHAMEHA SCHOOLS



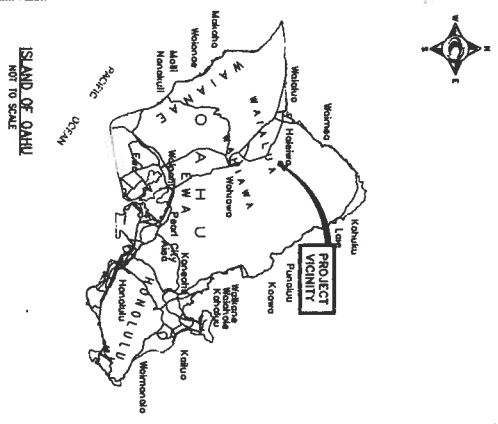
501 SOUTH KING STREET
HONOLULU, HAWAII 96813

PREPARED BY:

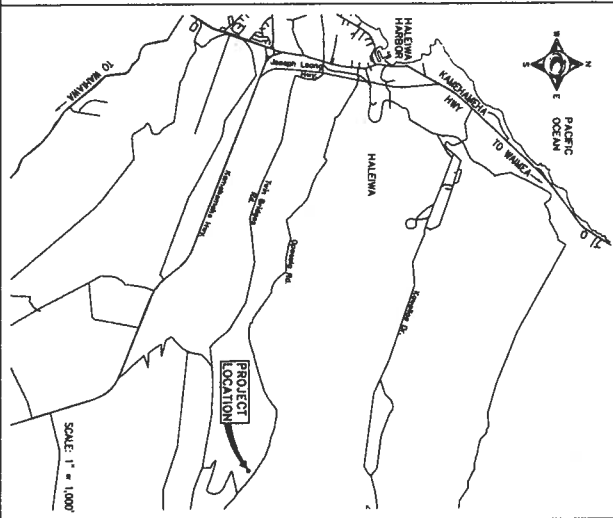


828 FORT STREET HALL, SUITE 600
HONOLULU, HAWAII 96813

VICINITY MAP



LOCATION MAP



SHEET INDEX

DRAWING NUMBER	SHEET	TITLE	DESCRIPTION OF DRAWINGS
1-1	1	NOTES	
1-2	2	EXISTING CONDITIONS	
EC-1	3	EROSION CONTROL PLAN	
C-1	4	GENERAL SITE PLAN	
C-2	5	GRADING PLAN	
C-3	6	GRADING PLAN - DAM FACE	
C-4	7	BREACH CHANNEL - PLAN AND PROFILE	
C-5	8	BREACH CHANNEL - CROSS SECTIONS	
C-6	9	BREACH CHANNEL - PLAN AND PROFILE	
C-7	10	BYPASS CHANNEL - PLAN AND PROFILE	
C-8	11	BYPASS CHANNEL - CROSS SECTIONS	
C-9	12	BYPASS CHANNEL - PLAN AND PROFILE	
C-10	13	BYPASS CHANNEL - CROSS SECTIONS	
C-11	14	BYPASS CHANNEL - PLAN AND PROFILE	
C-12	15	BYPASS CHANNEL - CROSS SECTIONS	
C-13	16	DETAILS - NEARBY AREA	
C-14	17	DETAILS - BRIDGE AREA	
C-15	18	DETAILS - DIVERSION WORKS ADAPTATION	
C-16	19	BORING LOGS	

APPROVALS

SIGNATURE OF PROJECT MANAGER AND PERMITTING
DATE

SIGNATURE OF PROJECT MANAGER
DATE

828 FORT STREET HALL, SUITE 600
HONOLULU, HAWAII 96813

501 SOUTH KING STREET
HONOLULU, HAWAII 96813

PROJECT NO. 2
(HI00019)
DAM REMOVAL

Wai'alua District
Honolulu, Hawaii 96813
TMK: 6-2-11:01

TITLE SHEET

APPROVED BY:

DATE: 09-29-11

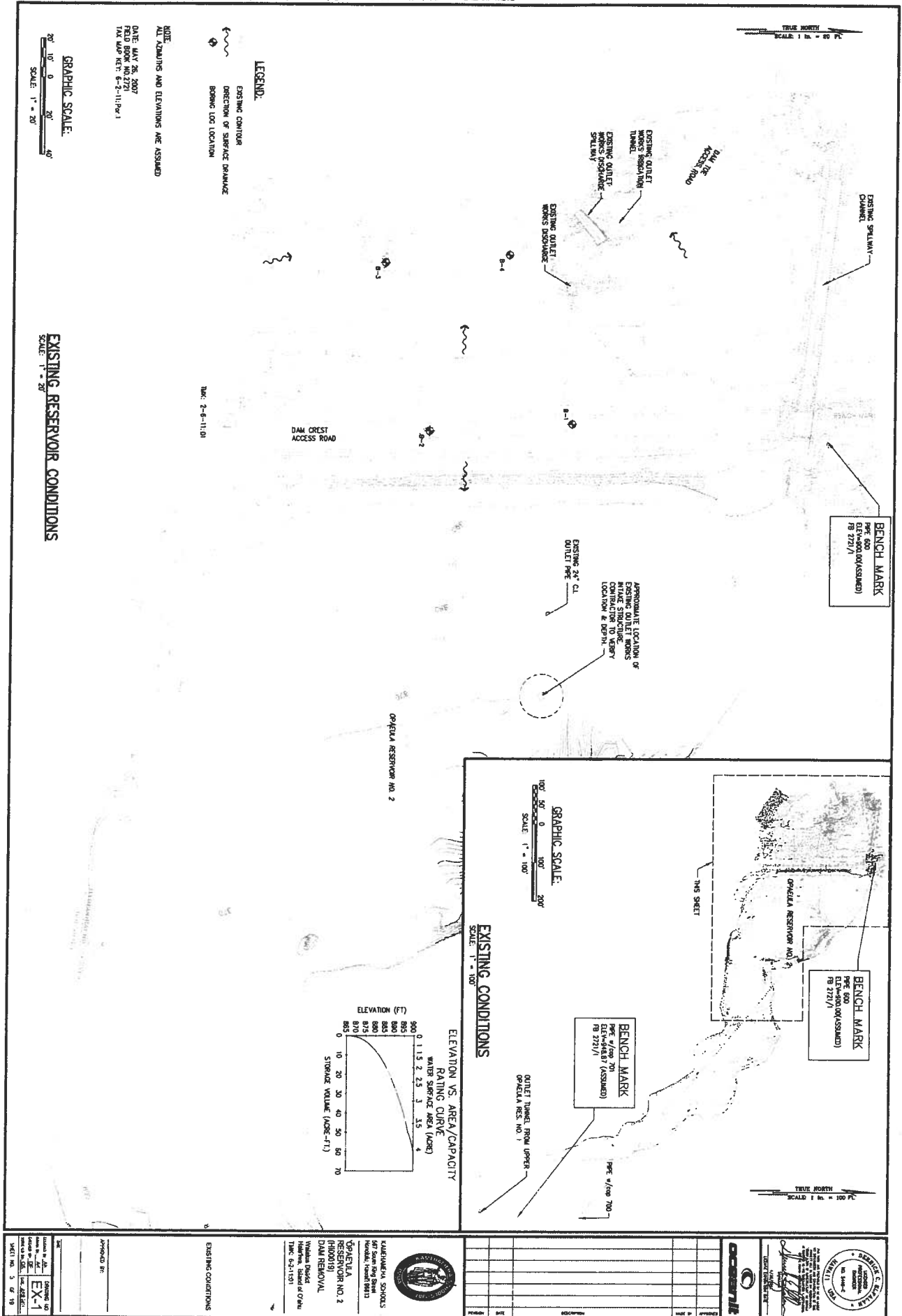
SCALE: 1" = 1,000'

PROJECT NO. 2
(HI00019)
DAM REMOVAL

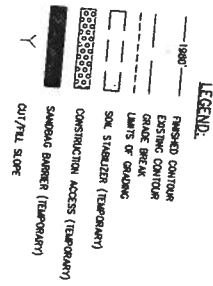
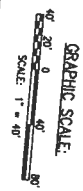
Wai'alua District
Honolulu, Hawaii 96813
TMK: 6-2-11:01

PROJECT NO. 2
(HI00019)
DAM REMOVAL

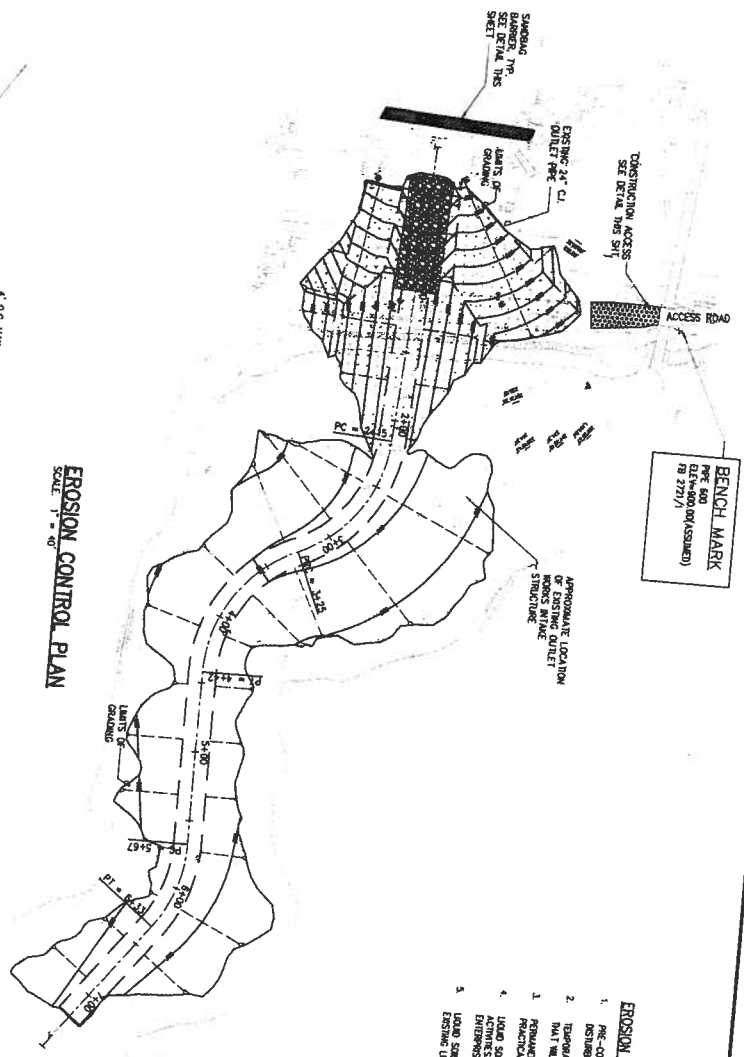
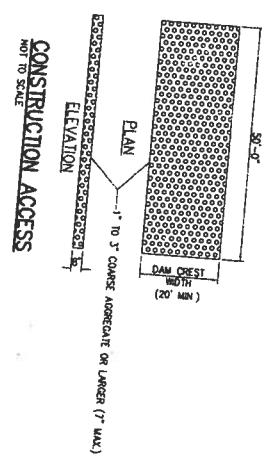
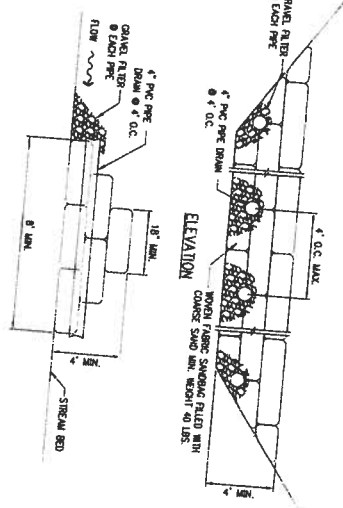
Wai'alua District
Honolulu, Hawaii 96813
TMK: 6-2-11:01



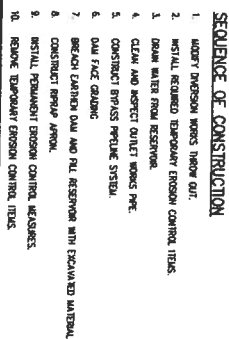
TRUE NORTH
SCALE: 1 in. = 20 ft



SANDBAG BARRIER DETAIL
NOT TO SCALE



1. PRE-CONSTRUCTION VEGTATION GRADING SHOULD NOT BE DESTROYED, REMOVED OR DISTURBED MORE THAN 10% (100) CUBIC YD. DIST. PER 1/2 AC. DISTURBANCE.
2. TOLERABLE VEGT. STABILIZATION WITH APPROPRIATE VEGETATION SHALL BE APPLIED ON AREAS THAT WILL REMAIN UNIMPAIRED FOR MORE THAN 10% (100) CUBIC YD. DIST.
3. REPAIRABLE VEGT. STABILIZATION WITH TOLERABLE VEGETATION SHALL BE APPLIED AS SOON AS POSSIBLE ON AREAS THAT WILL REMAIN UNIMPAIRED FOR LESS THAN 10% (100) CUBIC YD. DIST.
4. LOADS ON STABILIZED SHALL BE LIMITED TO ALL PERMISSIBLE LOADS EXCEPT GRAVING EQUIPMENT, EXCEPT LOADS ON STABILIZED SHALL BE LIMITABLE TO MAXIMUM BULK DENSITY OF 1.25 TONS PER CUBIC YD.
5. LOADS ON STABILIZED SHALL BE REIMPOSED AS SOON AS POSSIBLE. THE DDO OF THE MIDDLE W. AREAS MOORE EXISTING LOADS ON STABILIZED HAS BEEN OBTAINED.



'ŌPAE'ULA RESERVOIR NO.2 (HI00019) - DAM REMOVAL



GRAPHIC SCALE:

- LEGEND:**
- FINISHED CONTOUR
 - - - EXIST. CONTOUR
 - - - LIMITS OF GRADING
 - - - DRAIN BREAK
 - - - STREET CROWN, 1% CROWN
 - - - CUT/FILL SLOPE

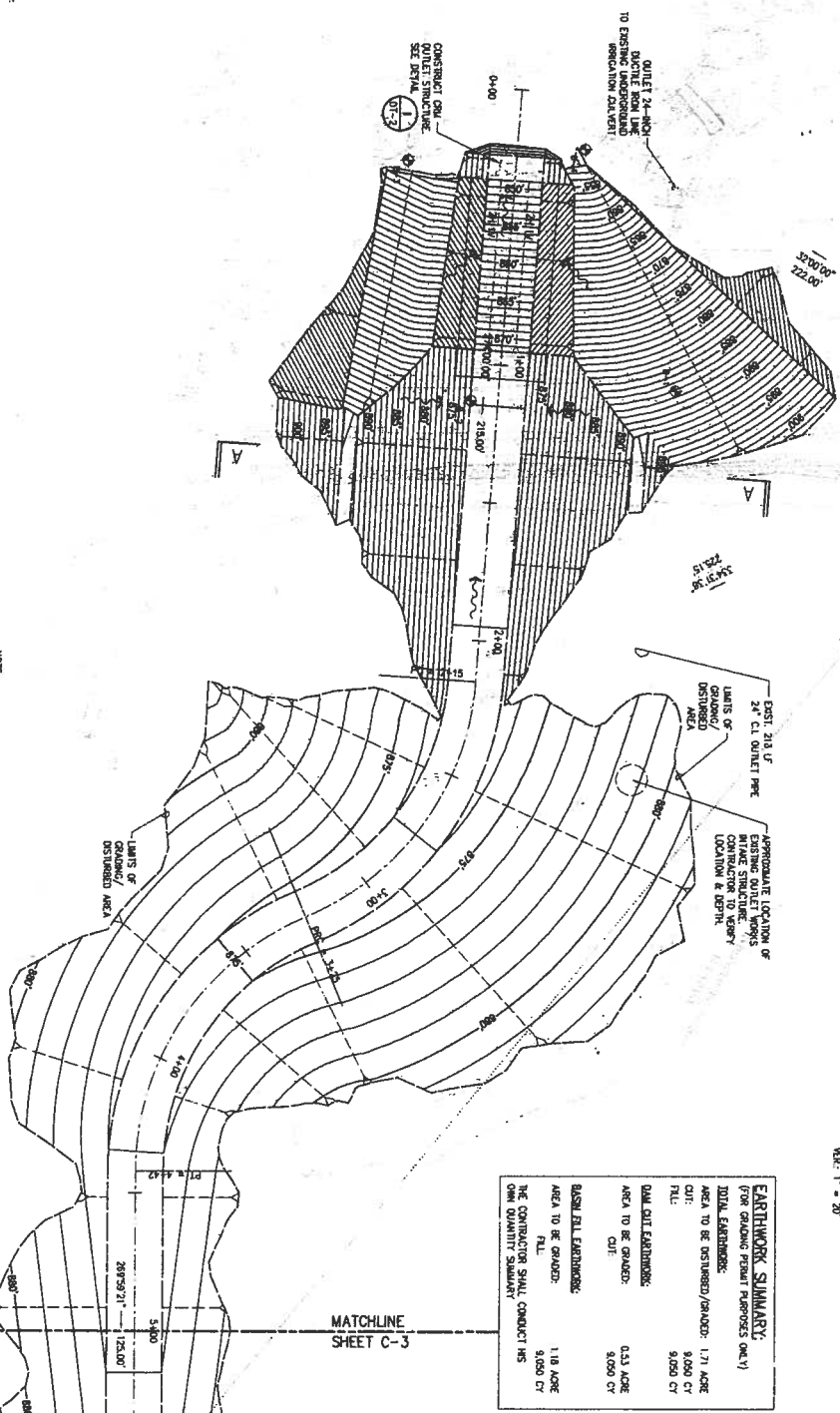
APPROVED:

CITY OF OAKLAND ENGINEERING BRANCH, 1999

DATE:

GRADING PLAN

NOTE:
THE CONTRACTOR SHALL NOT COMMENCE GRADING WORK PRIOR TO THE APPROVAL OF THE DAM REMOVAL APPLICATION BY THE CITY OF OAKLAND. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES (CONTACT ADJACENT LOTS: 207-4223).



MATCHLINE SHEET C-3

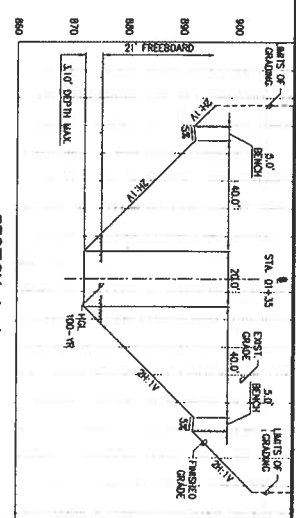
EARTHWORK SUMMARY:
(FOR GRADING PREPARE ONLY)

TOTAL EARTHWORK:	
AREA TO BE GRADDED/GRADDED: 1.71 ACRES	
CUT:	8,050 CY
FILL:	9,050 CY
DAM DIRT EARTHWORK:	
AREA TO BE GRADDED:	0.53 ACRES
CUT:	8,050 CY
BASIN FILL EARTHWORK:	
AREA TO BE GRADDED:	1.18 ACRES
FILL:	9,050 CY
THE CONTRACTOR SHALL CONDUCT HIS OWN QUANTITY SURVEY	



CONCRETE SPILLWAY

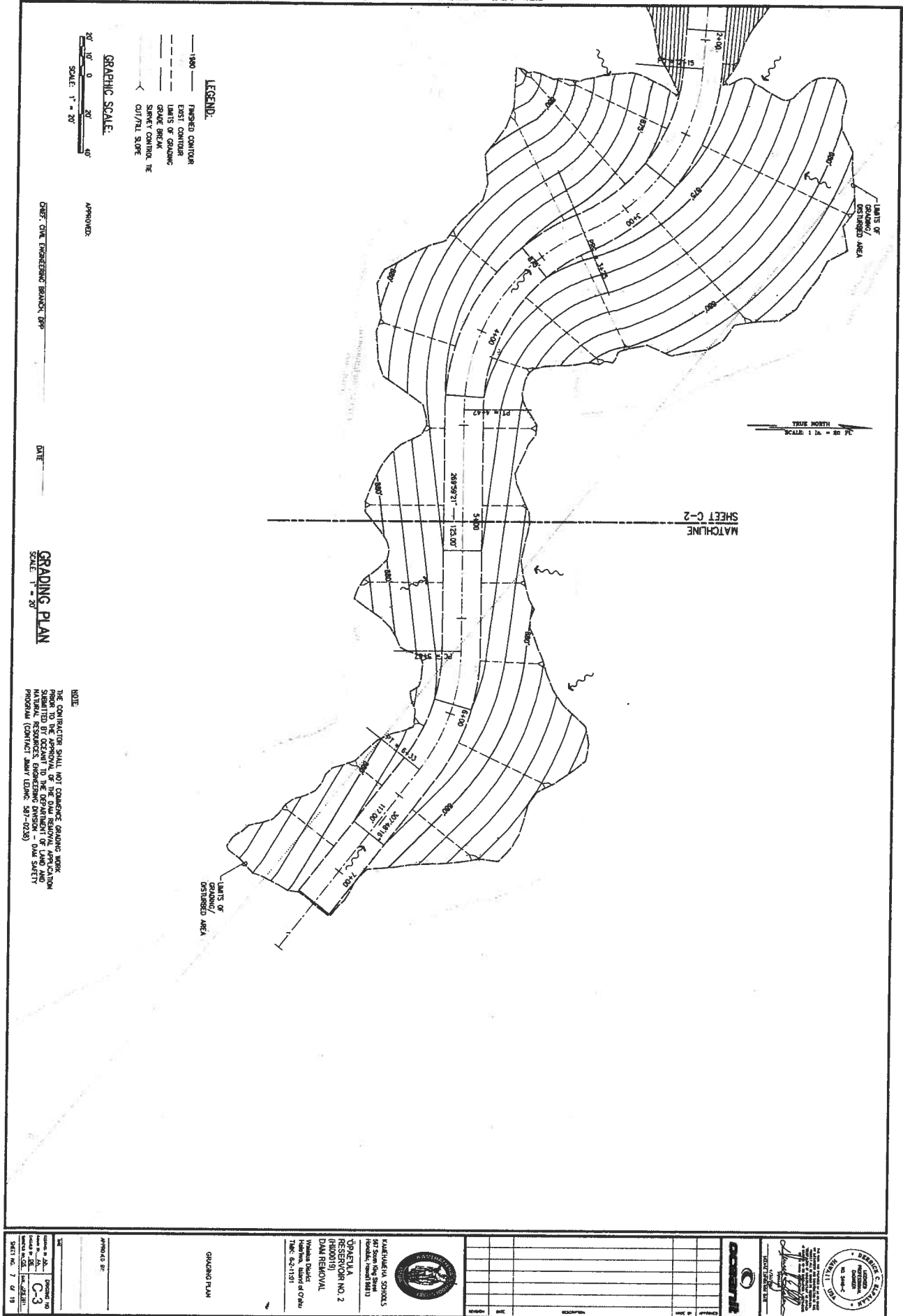
BENCH MARK
PREF. 400
ELEV. 400.00 (ASSUMED)
TS 2721/7

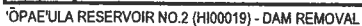


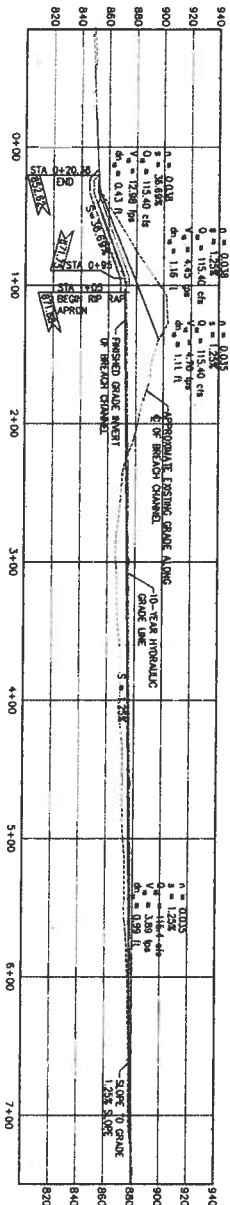
SECTION A-A

SCALE: HORIZ. 1" = 20'
VERT. 1" = 20'

<p>OPAEULA RESERVOIR NO. 2 (H100019) - DAM REMOVAL</p> <p>DATE: 08-28-11</p> <p>SCALE: 1" = 20'</p> <p>SHEET NO. 6 OF 15</p>		<p>OPAEULA RESERVOIR NO. 2 (H100019) - DAM REMOVAL</p> <p>DATE: 08-28-11</p> <p>SCALE: 1" = 20'</p> <p>SHEET NO. 6 OF 15</p>	<p>OPAEULA RESERVOIR NO. 2 (H100019) - DAM REMOVAL</p> <p>DATE: 08-28-11</p> <p>SCALE: 1" = 20'</p> <p>SHEET NO. 6 OF 15</p>	<p>OPAEULA RESERVOIR NO. 2 (H100019) - DAM REMOVAL</p> <p>DATE: 08-28-11</p> <p>SCALE: 1" = 20'</p> <p>SHEET NO. 6 OF 15</p>
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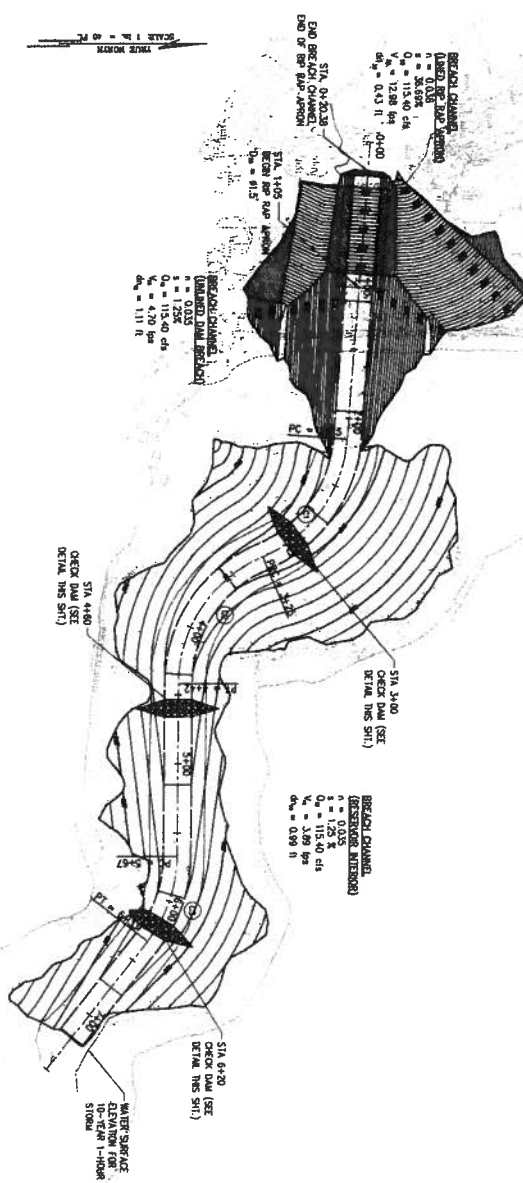






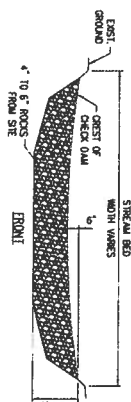
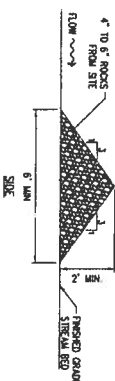
PROFILE BREACH CHANNEL
SCALE: HORIZ. 1" = 40'-0"
VERT. 1" = 40'-0"

PLAN
SCALE: 1" = 40'-0"



CLONE	LENGTH	FLANKS & ANGLE	TANGENT LENGTH	CHORD	CHORD
(1)	10.00	0.000	6.370	6.37	104.54
(2)	11.00	0.000	6.707	6.71	112.54
(3)	11.00	0.000	6.707	6.71	112.54
(4)	6.00	10.000	3.742	3.74	64.48

CHECK DAM TYPICAL DETAIL
NOT TO SCALE



OPAE'ULA
RESERVOIR NO. 2
(H100019)

DRAINAGE BASIN
DRAINAGE BASIN NO. 2
DRAINAGE BASIN NO. 2

DRAINAGE BASIN
DRAINAGE BASIN NO. 2
DRAINAGE BASIN NO. 2

DRAINAGE BASIN
DRAINAGE BASIN NO. 2
DRAINAGE BASIN NO. 2

OPAE'ULA
RESERVOIR NO. 2
(H100019)

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DRAINAGE BASIN NO. 2

CHAPTER 343 ANALYSIS

Project Name: Opaeula No. 2 Reservoir (OA-0019) – Dam removal
Dam Safety Construction/Alteration Permit No. 57
Reviewer: Jimmy Leung Date of Review: August 4, 2011

TRIGGERS (HRS §343-5(a))

Is there an "action" that triggers the need for an EA?

Action

An "action" is a program or project:

 Initiated by an agency

 X Initiated by an "applicant"

Any person who, pursuant to statute, ordinance, or rule, officially requests "approval" for a proposed action (discretionary consent required from an agency prior to actual implementation of an action, distinguished from a ministerial consent)

 HRS 179D Statute

 Ordinance

 Rule

Triggers

Yes No

 X Use of state or county lands or funds

 X Use of conservation district lands

 X Use within shoreline setback area

 X Use of historic site designated on the National or Hawaii registers

 X Use of land in the Waikiki Special District

 X Amendment to county general plan which would result in designations other than agriculture, conservation, or preservation unless initiated by a county

 X Reclassification of conservation lands by the Land Use Commission

 X Construction or modification of helicopter facilities that may affect conservation district lands, a shoreline setback area, or a historic site

 X Wastewater facilities, waste-to-energy facility, landfill, oil refinery, or power-generating facility

Triggers summary:

Is there a trigger? Yes No X

If Yes, Go to Exemptions

If No, Environmental Assessment is NOT required. Go to Summary.

EXEMPTIONS

Two sources of exemptions: exemption lists or exemptions contained in HAR §11-200-8(a)

1. Exemption Lists

 Division exemption lists

 Department-wide exemption list

Explain (which exemption list, which exemption, how it applies):

CHAPTER 343 ANALYSIS

2. HAR §11-200-8(a) exemptions

Operations, repairs, or maintenance of existing structures, facilities, equipment, or topographical features, involving *negligible or no expansion or change of use* beyond that previously existing

Replacement or reconstruction of existing structures and facilities where the new structure will be located generally on the same site and will have *substantially the same purpose, capacity, density, height, and dimensions* as the structure replaced

Construction and location of a single, *new, small facilities* or structures and the alteration and modification of the same and installation of new, small, equipment and facilities and the alteration and modification of same, including, but not limited to:

- (a) *Single family residences less than 3,500 square feet* not in conjunction with the building of two or more such units;
- (b) Multi-unit structures designed for *not more than four dwelling units* if not in conjunction with the building of two or more such structures;
- (c) Stores, offices, and restaurants designed for total occupant load of *twenty persons or less* per structure, if not in conjunction with the building of two or more such structures; and
- (d) Water, sewage, electrical, gas, telephone, and other essential public utility services extensions *to serve such structures* or facilities; accessory or appurtenant structures including garages, carports, patios, swimming pools, and fences; and acquisition of utility easements

Minor alterations in the conditions of land, water, or vegetation

Basic data collection, research, experimental management, and resource evaluation activities that *do not result in a serious or major disturbance* to an environmental resource

Construction or placement of *minor structures accessory* to existing facilities

Interior alterations involving things such as partitions, plumbing, and electrical conveyances

CHAPTER 343 ANALYSIS

- ☐ Demolition of structures, *except* those structures located on any *historic site* as designated on the National or Hawaii registers
- ☐ Zoning variances *except shoreline* set-back variances
- ☐ Continuing administrative activities including, but not limited to purchase of supplies and personnel related actions; and
- ☐ Acquisition of land and existing structures, including single or multi-unit dwelling units, for the provision of *affordable housing*, involving *no material change of use* beyond that previously existing, and for which the *legislature has appropriated* or otherwise authorized *funding*

Explain (how the exemption indicated above applies):

Exemptions summary:

Does the Project qualify for an exemption? Yes ☐ No ☐

If Yes, Exemption noted above, No Environmental Assessment required

If No, Project does not qualify for exemption and requires an Environmental Assessment

CUMULATIVE IMPACT

Exemptions are inapplicable when the cumulative impact of planned successive actions in the same place, over time, is significant, or when an action that is normally insignificant in its impact on the environment may be significant in a particularly sensitive environment.

SUMMARY

Is Environmental Assessment required?

Yes ☐
No ☒

DAM SAFETY PERMIT GENERAL CONDITIONS

APPROVAL OF PLANS AND SPECIFICATIONS FOR DAM AND RESERVOIR CONSTRUCTION, ENLARGEMENT, REPAIR, ALTERATION OR REMOVAL

The following General Conditions shall be adhered to for all Dam Safety permits unless otherwise authorized in writing.

1. Actual construction, enlargement, repair, alteration or removal shall be completed within 5 years of issuance of the permit application approval unless an extension authorized in writing by the Board is issued.
2. Prior to the start of work the owner or applicant shall provide a construction engineer to ensure compliance with the approved plans and specifications and who shall have ultimate responsibility for the supervision of all inspection tasks. The construction engineer may assign some inspection tasks to a duly authorized agent under the construction engineer's supervision. The engineer shall be licensed in the State of Hawaii.
3. The construction engineer shall maintain a record of construction that at a minimum, shall include, daily activity, and progress reports, all test results pertaining to construction; photographs sufficient to provide a record of foundation conditions and various stages of the construction through completion, all geologic information obtained; and construction problems and remedies.
4. A construction quality assurance plan shall be prepared and submitted to the Department for approval prior to the start of construction, which details the minimum requirements of the construction engineer's observation of construction.
5. A construction schedule, which includes the notice to proceed date and estimated project duration and a construction emergency action plan shall be submitted prior to the preconstruction meeting.
6. A preconstruction meeting shall be held subsequent to submitting the quality assurance plan, construction schedule and construction emergency action plan, but not later than 14 days prior to the start of construction. All parties actively involved in the construction should be requested to attend, such as the dam owner, the design engineer, the construction engineer, the contractor and the Department.
7. The Department shall be notified 5 calendar days prior to the commencement of construction.
8. Any changes from the approved plans and specifications shall be approved by the design engineer and a change order, including details and supporting calculations, must be provided to the Department. Major changes must be submitted in writing with supporting documentation and approved in writing by the Department. No work shall be initiated until the approval by the Department or Board is received. Minor changes may be transmitted verbally and approved by the Department verbally provided that documentation of the change is provided to the Department within 10 days of the approval.

9. For new dam construction and for dams and reservoirs that have lowered the water level or have been drained to facilitate construction, the construction engineer shall file and obtain approval of a filling plan with the Department. The applicant/owner shall not proceed with the filling of the reservoir until it receives permission from the Department. The construction engineer shall provide documentation of monitoring during the filling operation.
10. Prior to the filling of the reservoir, the construction engineer shall submit one copy each of the approved Operations Manual and the approved Emergency Action Plan for the facility upon completion of the project as applicable.
11. The construction engineer shall give the Department at least ten days advanced notice of initial materials placement of the dam's foundation, in the cutoff trench, outlet backfill, outlet foundation, and any appurtenance requested by the Department in the approval of the plan for construction observation, to allow for observation by the Department.
12. Notice of substantial completion shall be issued by the construction engineer to the Department stating that the permitted improvements are functionally complete such that filling of the reservoir can be initiated with an approved filling plan.
13. The construction engineer shall give the Department fifteen (15) calendar days advance written notice prior to the project's final construction inspection. The construction engineer shall coordinate with the Department to conduct this inspection in the presence of the Department's dam safety personnel.
14. The construction engineer shall provide notice at least ten (10) days prior to initiating filling the reservoir, unless agreed at the final inspection.
15. If conditions are revealed which will not permit the construction, enlargement, repair, alteration, or removal of a safe dam or reservoir, the application for approval for construction, enlargement, repair, alteration, or removal shall be revoked.
16. A topographic survey of completed work including all monuments, inverts, crest alignment, spillways, and significant appurtenant features, when required by the Department shall be completed.
17. The applicant/owner shall utilize appropriate erosion control best management practice measures during construction to minimize turbidity (such as scheduling of work during period of low stream flow) and prevent debris and construction materials, including concrete, petroleum products, and other pollutants from enter the waters of the State. Construction related water and debris should be properly disposed of in a legal and environmentally safe manner and in accordance with the Department of Health and other Federal regulations.
18. The applicant/owner shall submit a copy of the dam safety application and the plans and specifications of the proposed improvements to the County Engineer of the County for which the dam resides for compliance with County codes.
19. Within fifteen (15) calendar days of completing the project, the applicant/owner or its representative shall provide the Department with a confirmation letter of compliance, signed and stamped by the construction engineer, indicating that the construction

was completed in accordance to approved plans and specifications including any field changes. The construction engineer shall submit the remaining construction completion documents which may include, but not be limited to, as-constructed drawing, final construction report, topographic survey, record of the location of permanent monuments, log of recorded water levels and other readings from the refilling operation, long-term instrumentation monitoring plan, and affidavit showing the actual cost of construction including engineering costs, within 60 calendar days of the submittal of the final construction inspection.

20. Construction completion documents and the construction engineer's certification shall be provided to the Department within 60 days of the final construction inspection. The Department will review the submitted items and furnish acceptance or denial within 60 days of receipt of satisfactorily completed construction completion documents and close out the dam safety permit.
21. This permit does not relieve the applicant/owner of their obligations to comply with all applicable Federal, State, and County regulations.